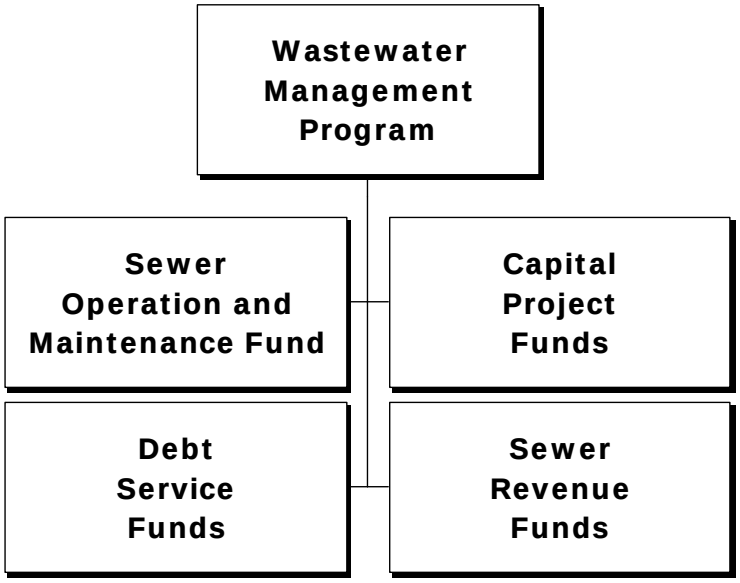
Wastewater Management Program Overview



Focus

The Wastewater Management Program (WWM) is operated, maintained and managed within the Department of Public Works and Environmental Services (DPWES). The program currently includes the County-owned Noman M. Cole, Jr. Pollution Control Plant (67 million gallons per day (mgd) capacity), nearly 3,422 miles of sewer lines, 59 pump stations, 54 flow-metering stations, and covers approximately 234 square miles of the County's 407 square-mile area. Capacity entitlement at the other regional facilities totals 90 mgd. A total of 365,838 households and businesses in Fairfax County are connected to public sewer as of June 30, 2014.

In addition to providing County residents and businesses with sewer service, Fairfax County provides sewer service to other nearby entities through "Sales of Service" agreements with Arlington and Loudoun Counties, the cities of Falls Church and Fairfax, the towns of Herndon and Vienna, and Fort Belvoir. These entities share the capital and operating costs of WWM based on actual wastewater flow and reserved treatment capacity.

Strategic planning and overall business monitoring is the responsibility of the Wastewater Management Leadership Team, whose responsibilities focus on long range planning, strategic thinking, continuous improvement processing, wastewater capacity, and financial management. This team is composed of employees from three divisions within WWM - Collections, Treatment, and Planning and Monitoring.

The Wastewater Collection Division (WCD) is responsible for the County's wastewater collection and conveyance system consisting of sewers, force mains, pumping stations, and metering stations. The WCD has a proactive sewer system maintenance program that facilitates a safe and effective wastewater collection system. In FY 2014, approximately 235 miles of sewer lines were inspected by Closed Circuit Television (CCTV) crews and approximately 450 miles of sewer lines were cleaned to ensure maximum flow carrying capacity and reduce sewer backups and overflows. Over the last six years, WCD has rehabilitated approximately 125 miles of sewer lines to protect the environment and residents of Fairfax County.

The Wastewater Treatment Division (WTD) is responsible for operating and maintaining the County's wastewater treatment facility, the Noman M. Cole, Jr. Pollution Control Plant (NCPCP). The WTD

continues to produce a quality effluent to meet regulatory and permit requirements, despite major construction occurring throughout the plant site. The NCPCP completed a major component to the Enhanced Nitrogen Removal Program with the substantial completion of the Moving Bed Biological Reactors and the Water Reuse Project which delivered 355 million gallons of reclaimed water to the Lorton Little League, Laurel Hill Golf Course, and Covanta.

The Wastewater Planning and Monitoring Division (WPMD) is responsible for the agency's fiscal planning, engineering planning, and wastewater monitoring. The WPMD continues to effectively monitor the long-term needs for the Wastewater Management Program in terms of infrastructure upgrades, maintenance, and expansions. The WPMD ensures that all financial requirements are fulfilled by maintaining a rate structure to adequately recover all operating and maintenance costs, capital improvements and debt service obligations. The WPMD also plans for system capacity, both in the conveyance system and treatment facilities, by initiating expansion and improvement projects to keep pace with increased wastewater flows. The WPMD safeguards the environment by ensuring compliance with water quality standards and prevention of toxic discharges into the collection system.

WPMD is currently monitoring the Chesapeake Bay water quality program which requires reductions in the amount of nutrient pollutants discharged from wastewater treatment facilities. In December 2004, the state notified the County that the renewal of the County's National Pollutant Discharge Elimination System (NPDES) permit would include a requirement that nutrient removal be performed using "State of the Art" technology and meet a waste load allocation (cap) for the nutrients nitrogen and phosphorus by 2013. A phased approach has been under way to renovate and upgrade current plant facilities to accommodate these more stringent nutrient discharge requirements. The NCPCP emitted only 323,284 pounds of nitrogen and 7,418 pounds of phosphorus into the Potomac River and Chesapeake Bay.

The Wastewater Management Program is primarily supported by Sewer Service Charges received from existing customers which are used to fully recover program operation and maintenance costs, debt service payments and capital project requirements attributable to improving wastewater treatment effluent quality as mandated by state and federal agencies. The five-year sewer rate plan approved by the Board of Supervisors as part of the FY 2015 Adopted Budget Plan proposed to increase sewer revenues by 4 percent in FY 2016. After careful review, the Wastewater Management staff recommends a 3.6 percent increase in FY 2016 which will result in an annual increase of $19.32 to the typical household. The Sewer Service Charge will increase from $6.62 to $6.65 per 1,000 gallons of water consumed, based on Fairfax County's winter quarter average consumption of 18,000 gallons.

The Base Charge will increase from $15.86 per quarter to $20.15 per quarter. The Base Charge provides for a more equitable rate structure by recovering a portion of the program's fixed costs. The industry practice for a fixed cost recovery rate via Base Charge is 25 percent. In order to strive towards this level of recovery, a phase-in approach is being proposed with a cost recovery rate in FY 2016 of 13.5 percent. The current system, including sewer lines, facilities, purchased capacity and equipment, is valued at approximately $2.0 billion. Based on the age and required maintenance of the system, it is imperative that reinvestment continues to be addressed. The implementation of the proposed increases to the Base Charge will help ensure that all users of the system share in the fixed costs associated with reinvestment and operations.

Increases to both the Sewer Service Charge and Base Charge will change the annual average customer bill from $540.08 in FY 2015 to $559.40 in FY 2016, a cost increase of $19.32 or 3.6 percent. The FY 2016 average bill in Fairfax County is lower compared to the average bill in other regional jurisdictions even with the proposed increases. The increases in the Sewer Service Charge and Base Charge will partially

offset the increased costs associated with capital project construction, system operation and maintenance, debt service and upgrades to meet new, more stringent nitrogen discharge limitations from wastewater treatment plants. The following table represents the proposed five-year rate plan and is consistent with the October 2014 Wastewater Revenue Sufficiency and Rate Analysis report.

Year	Sewer Service Charge Per 1,000 gallons water consumed	New Base Charge Per Quarterly Bill	Revenue Percentage Increase	Percent Fixed Cost Recovered
2015	$6.62	$15.86	3.3%	11.0%
2016	$6.65	$20.15	3.6%	13.5%
2017	$6.68	$24.68	3.6%	16.1%
2018	$6.75	$27.62	2.9%	17.9%
2019	$6.82	$29.83	2.3%	19.1%

This level of revenue in FY 2016 will allow the system to meet permit conditions, meet and maintain all of the required financial targets through FY 2019, maintain competitive rates with neighboring utilities, continue to preserve an AAA bond rating, and require less debt to support capital projects. Projected revenue requirements are consistent with the analysis included in the October 2014 Wastewater Revenue Sufficiency and Rate Analysis report.

The table below reflects the Wastewater Management Program's projected fiscal health in FY 2016 and FY 2017. The financial planning process incorporates the following indicators that are interrelated and structured to identify the adequacy of rates from a cash flow, business, and compliance standpoint. These indicators are used by the rating agencies to determine the program's credit rating.

Calculated Financial Indicators

Financial Indicator	Target	Achieved	FY 2016	FY 2017
Net Revenue Margin	45.0% to 52.0%	Yes	51.9%	51.0%
Days Working Capital[1]	150 to 200 days	Yes	157	157
Debt Coverage Senior	Min. 3.00x	Yes	3.37x	3.51x
Debt Coverage All-in	1.80x to 2.20x	Yes	2.09x	1.98x
Affordability (% of median income spent on sewer bill)	Less than 1.2%	Yes	0.5%	0.5%
Debt to Net Plant in Service	40.0% to 50.0%	Yes	48.5%	49.5%
Outstanding Debt per Connection	Max $3,000	Yes	$1,556	$1,610
Anticipated Sewer Bond Sales Through FY 2019				$100.0 M

(1) Exclusive of Availability Charges in Fund 69000, Sewer Revenue Fund, and Fund 69300, Sewer Construction Improvement Fund. Calculated based on Operating Expenses and 360 days.

It is anticipated that the proposed rates in FY 2016 will support the County's ability to maintain high bond ratings (AAA by Fitch Investor Service and Standard and Poor's Corporation and Aa1 by Moody's Investors Service, Inc.) from rating agencies. These high credit ratings have enabled the County to sell bonds on behalf of the Program at interest rates lower than those obtained by most sewer authorities, thereby achieving savings throughout the life of the bonds. The Wastewater Management Program has issued debt to fund major expansion and upgrade projects for both its own plant and its portion at the "Treatment by Contract" facilities.

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In FY 2016, the County is projected to provide for the treatment of 105.3 million gallons of wastewater per day. Approximately 39 percent of this flow is treated at the NCPCP. The flow is distributed between the NCPCP and the interjurisdictional facilities as detailed in the table below. The table also includes the capacity utilization percentage and the available (unused) capacity for each plant.

Treatment Plant	Capacity (MGD)	FY 2016 Projected Daily Average (MGD)	Capacity Utilization (%)	Available Capacity (MGD)
DCWASA Blue Plains	31.0	30.4	98.1%	0.6
Noman M. Cole, Jr.	67.0	40.9	61.0%	26.1
Alexandria Renew Enterprises	32.4	19.2	59.3%	13.2
Arlington County	3.0	2.0	66.7%	1.0
Upper Occoquan Service Authority	22.6	12.8	56.6%	9.8
Loudoun Water	1.0	0.0	0.0%	1.0
Total	**157.0**	**105.3**	**67.1%**	**51.7**

To ensure that WWM remains competitive and provides a high performance operation including improvements to the technical and managerial capacities that will continue to enhance service quality, customer service and financial planning, WWM closely monitors the following areas:

	FY 2014 (Actual)	FY 2015 (Adopted)	FY 2016 (Advertised)
Sewer Service Charge, $/1,000 gallons	$6.01	$6.62	$6.65
Treatment Costs, $/MGD	$1,509	$1,538	$1,530
Number of Sewer System Overflows (5-year rolling average)	21	15	15
Odor Complaints per year	12	18	18

The WWM comprises seven separate funds under a self-supporting fund structure (Enterprise Funds) consistent with the Sewer Bond Resolution adopted by the Board of Supervisors in July 1985. For more detailed information of the operational aspects of the various programs, refer to the narrative of Fund 69010, Sewer Operation and Maintenance, which immediately follows this Overview. The following is a brief description of the seven active funds:

- **Fund 69000** - Sewer Revenue is used to credit all operating revenues of the system, as well as most of the interest on invested fund balances. Revenues recorded in this fund are transferred to the various funds to meet their operational requirements. The remaining fund balances are used to set aside funds for various reserves and future system requirements.

- **Fund 69010** - Sewer Operation and Maintenance provides funding for the three divisions responsible for the management and operation of the program, supported by a transfer from Fund 69000.

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- **Fund 69020** - Sewer Bond Parity Debt Service is used to record principal, interest, and fiscal agent fees for the 2009, 2012, and 2014 Sewer Revenue Bonds in accordance with the current Sewer Bond Resolution, supported by a transfer from Fund 69000.

- **Fund 69030** - Sewer Bond Debt Reserve provides debt reserve funds for the 2009, 2012, and 2014 Sewer Revenue Bonds in accordance with the current Sewer Bond Resolution, which are funded from the issuance of sewer revenue bonds and/or program revenues.

- **Fund 69040** - Sewer Bond Subordinate Debt Service records all debt service payments on the Upper Occoquan Service Authority (UOSA) revenue bonds and Virginia Resources Authority (VRA) loans. All future issues or refinancing of debt arising from interjurisdictional capacity rights may be treated as subordinate obligations of the system as provided by the General Bond Resolution for Sewer Revenue Bonds. Funding is supported by a transfer from Fund 69000.

- **Fund 69300** - Sewer Construction Improvements provides funding for the repair, rehabilitation and improvement requirements of the entire program's infrastructure, supported by a transfer from Fund 69000.

- **Fund 69310** - Sewer Bond Construction provides for major program construction projects, which are funded from the issuance of sewer revenue bonds and/or program revenues.